

Aerosol Remote Sensing from Space -- What We've Learned, Where We're Heading

The MISR and MODIS instruments aboard the NASA Earth Observing System's Terra Satellite have been collecting data containing information about the state of Earth's atmosphere and surface for over ten years. Among the retrieved quantities are amount and type of wildfire smoke, desert dust, volcanic effluent, urban and industrial pollution particles, and other aerosols. However, the broad scientific challenges of understanding aerosol impacts on climate and health place different, and very exacting demands on our measurement capabilities. And these data sets, though much more advanced in many respects than previous aerosol data records, are imperfect. In this presentation, I will summarize current understanding of MISR and MODIS aerosol product strengths and limitations, discuss how they relate to the bigger aerosol science questions we must address, and give my view of what we will need to do to progress.

Biographical Paragraph:

Ralph Kahn, a Senior Research Scientist at NASA's Goddard Space Flight Center, received his PhD in applied physics from Harvard University. He spent 20 years as a Research Scientist and Senior Research Scientist at the Jet Propulsion Laboratory, where he studied climate change on Earth and Mars, and also led the Earth & Planetary Atmospheres Research Element. Kahn is Aerosol Scientist for the NASA Earth Observing System's Multi-angle Imaging SpectroRadiometer (MISR) instrument. He focuses on using MISR's unique observations, combined with other data and numerical models, to learn about wildfire smoke, desert dust, volcano and air pollution particles, and to apply the results to regional and global climate-change questions. Kahn has lectured on Global Climate Change and atmospheric physics at UCLA and Caltech, and is editor and founder of PUMAS, the on-line journal of science and math examples for pre-college education (<http://pumas.nasa.gov>).